

EXHIBIT C – CLAIM 1 OF THE '663 Patent

<p>1. A method of performing power headroom reporting, hereafter called PHR, for a communication device configured with a plurality of uplink component carriers or parallel PUCCH and PUSCH transmission in a wireless communication system, the method comprising:</p>	<p>To the extent the preamble is limiting, Volkswagen's cars include telematics modules that practice this limitation. For example, the telematics modules and related communications technology in the car implement the following standards which practice the claimed invention:</p> <p>[1] TS 36.321 3GPP TSG RAN; Evolved Universal Terrestrial Radio Access (E-UTRA); Medium Access Control (MAC) protocol specification (Release 10), v 10.1.0 (2011-03)</p> <p>In particular, for example, the procedures set forth in TS 36.321 3GPP TSG RAN; Evolved Universal Terrestrial Radio Access (E-UTRA); Medium Access Control (MAC) protocol specification (Release 10), v 10.1.0 (2011-03), provide for performing power headroom reporting for a plurality of uplink component carriers or parallel PUCCH-PUSCH transmission.</p> <p>5.4.6 Power Headroom Reporting</p> <p>...</p> <ul style="list-style-type: none"> - if <i>extendedPHR</i> is configured: <ul style="list-style-type: none"> - for each activated Serving Cell with configured uplink: <p>...</p> - if <i>simultaneousPUCCH-PUSCH</i> is configured: <p>...</p>
<p>reporting power headroom information of at least one of the communication device, at least an uplink component carrier, and at least a power amplifier configured to the communication device, to a network of the wireless communication system with a medium access control protocol data unit, hereafter called MAC PDU, when the PHR is triggered;</p>	<p>This limitation is present in the Accused Products. For example, 3GPP standard TS 36.321 3GPP TSG RAN; Evolved Universal Terrestrial Radio Access (E-UTRA); Medium Access Control (MAC) protocol specification (Release 10), v 10.1.0 (2011-03) describes how the standard provides for reporting power headroom information of at least one of the communication device, at least an uplink component carrier, and at least a power amplifier configured to the communication device to a network with a MAC PDU when the PHU is triggered:</p> <p>TS 36.321 3GPP TSG RAN; Evolved Universal Terrestrial Radio Access (E-UTRA); Medium Access Control (MAC) protocol specification (Release 10), v 10.1.0 (2011-03)</p> <p>5.4.6 Power Headroom Reporting</p> <p>...</p> <p>If the UE has UL resources allocated for new transmission for this TTI:</p> <p>...</p>

	<ul style="list-style-type: none"> - if the Power Headroom reporting procedure determines that at least one PHR has been triggered since the last transmission of a PHR or this is the first time that a PHR is triggered, and; <p>...</p> <ul style="list-style-type: none"> - if <i>extendedPHR</i> is configured: <ul style="list-style-type: none"> - for each activated Serving Cell with configured uplink: <ul style="list-style-type: none"> - obtain the value of the Type 1 power headroom; - if the UE has a valid grant for this Serving Cell for this TTI: <ul style="list-style-type: none"> - obtain the value of the corresponding $P_{\text{CMAX},c}$ from the physical layer; - if <i>simultaneousPUCCH-PUSCH</i> is configured: <ul style="list-style-type: none"> - obtain the value of the Type 2 power headroom for the PCell; - if the UE has a PUCCH transmission in this TTI: <ul style="list-style-type: none"> - [FFS if only if different than $P_{\text{CMAX},c}$ for Type 1 power headroom for the PCell] obtain the value of the corresponding $P_{\text{CMAX},c}$ from the physical layer; - instruct the Multiplexing and Assembly procedure to generate and transmit an Extended PHR MAC control element as defined in subclause 6.1.3.6a based on the values reported by the physical layer; <p>...</p> <p>6.1.2 MAC PDU (DL-SCH and UL-SCH except transparent MAC and Random Access Response, MCH)</p> <p>A MAC PDU consists of a MAC header, zero or more MAC Service Data Units (MAC SDU), zero, or more MAC control elements, and optionally padding; as described in Figure 6.1.2-3.</p> <p>...</p> <p>6.1.3.6a Extended Power Headroom MAC Control Element</p> <p>The Extended Power Headroom MAC control element is identified by a MAC PDU subheader with LCID as specified in table 6.2.1-2. ...</p>
<p>wherein the MAC PDU includes a bitmap for indicating absence of the power headroom information of at least one of the power amplifier, the component carrier, and the communication device.</p>	<p>This limitation is present in the Accused Products. For example, 3GPP standard TS 36.321 3GPP TSG RAN; Evolved Universal Terrestrial Radio Access (E-UTRA); Medium Access Control (MAC) protocol specification (Release 10), v 10.1.0 (2011-03) describes how the standard provides for the MAC PDU including a bitmap for indicating the absence of power headroom,m information for at least one of the power amplifier, the component carrier, and the communication device:</p>

	<p>TS 36.321 3GPP TSG RAN; Evolved Universal Terrestrial Radio Access (E-UTRA); Medium Access Control (MAC) protocol specification (Release 10), v 10.1.0 (2011-03)</p> <p>6.1.3.6a Extended Power Headroom MAC Control Element</p> <p>The Extended Power Headroom MAC control element is identified by a MAC PDU subheader with LCID as specified in table 6.2.1-2.</p> <p>...</p> <p>The Extended Power Headroom MAC Control Element is defined as follows:</p> <ul style="list-style-type: none"> - <i>C_i</i>: this field indicates the presence of a PH field for the SCell with <i>SCellIndex i</i> as specified in [8]. The <i>C_i</i> field set to "1" indicates that a PH field for the SCell with <i>SCellIndex i</i> is reported. The <i>C_i</i> field set to "0" indicates that a PH field for the SCell with <i>SCellIndex i</i> is not reported; - <i>R</i>: reserved bit, set to "0"; - <i>V</i>: this field indicates if the PH value is based on a real transmission or a reference format. For Type 1 PH, <i>V</i>=0 indicates real transmission on PUSCH and <i>V</i>=1 indicates that a PUSCH reference format is used. For Type 2 PH, <i>V</i>=0 indicates real transmission on PUCCH and <i>V</i>=1 indicates that a PUCCH reference format is used. Furthermore, for both Type 1 and Type 2 PH, <i>V</i>=0 indicates the presence of the associated <i>P_{CMAX,c}</i> field, and <i>V</i>=1 indicates that the associated <i>P_{CMAX,c}</i> field is omitted; - Power Headroom (PH): this field indicates the power headroom level. The length of the field is 6 bits. The reported PH and the corresponding power headroom levels are shown in Table 6.1.3.6-1 (the corresponding measured values in dB can be found in subclause 9.1.8.4 of [9]). - <i>P</i>: this field indicates whether the UE applies an additional power backoff due to power management (as allowed by P-MPR [10]). The UE shall set <i>P</i>=1 if the corresponding <i>P_{CMAX,c}</i> would have had a different value if no additional power management had been applied; - <i>P_{CMAX,c}</i>: if present, this field contains the <i>P_{CMAX,c}</i> used for calculation of the preceding PH field.
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C ₇	C ₆	C ₅	C ₄	C ₃	C ₂	C ₁	R
P	V	PH (Type 2, PCell)					
R	R	P _{C_{MAX,c} 1}					
P	V	PH (Type 1, PCell)					
R	R	P _{C_{MAX,c} 2}					
P	V	PH (Type 1, SCell 1)					
R	R	P _{C_{MAX,c} 3}					
...							
P	V	PH (Type 1, SCell n)					
R	R	P _{C_{MAX,c} m}					

Figure 6.1.3.6a-2: Extended Power Headroom MAC Control Element